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# Applying the IPCC 2006 Guidelines: Challenges and Opportunities

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# IPCC 2006 Guidelines Evolution

- Developed from the 1996 IPCC Guidelines, GPG2000, GPG-LULUCF and input from GHG inventory experts
- Generally similar approaches to 1996 Guidelines, with a few changes in sector categorization, emission factors or default data and new emission estimates and GHGs
- The changes do not impact significant changes to data continuity and trending
- Improved default data, more user friendly, e.g significantly reduce the need for cross referencing between volumes
- Any user familiar with GPG2000 and GPG-LULUCF should be able to shift to the 2006 IPCC Guidelines without difficulty
- Enhanced completeness, eg extension of N<sub>2</sub>O emissions from NO<sub>x</sub> and NH<sub>3</sub>

# 2006 Guidelines Volume 1

- Provides an overview of the GHG inventory preparation process
- Includes details on robust data collection
- Provides new approach to Key Category Analysis

# 2006 IPCC Guidelines on Key Category Analysis (KCA)

- Using IPCC 1996 Guidelines and GPG, KCA would be divided into two approaches
  - KCA without LULUCF
  - KCA with LULUCF
- The new approach for KCA based on 2006 Guidelines the two previous approaches are now integrated into one general approach

# Volume 2: Energy sector - new elements



- General structure similar to 1996 Guidelines; combustion and fugitive emissions
- CO<sub>2</sub> capture and storage (CCS) - added
  - More comprehensive coverage
- Methane from abandoned coal mines
  - New methodology included for the first time
- Catalytic converters using urea - added
- Uncontrolled combustion and burning of coal deposits - added
- Emission factors: emission factors now estimate CO<sub>2</sub> directly without going through the carbon content approach
- Oxidation factors: the assumption now is 100% for all fuels

# Volume 2: IPPU - New elements

- New categories and new gases
  - more manufacturing sectors and product uses, including production of lead, zinc, titanium dioxide, petrochemicals, and liquid crystal display (LCD) manufacturing
  - New gases include nitrogen trifluoride ( $\text{NF}_3$ ), trifluoromethyl sulphur pentafluoride ( $\text{SF}_5\text{CF}_3$ ), and halogenated ethers
  - Sulfur Hexafluoride and per-fluorocarbons from other product use (Military applications and accelerators)
- New approach to non-energy uses of fossil fuels
  - improved differentiation from energy sector
- Actual emissions of fluorinated compounds
  - The potential emissions approach is no longer considered appropriate
- There is an improved organization for some categories e.g use of carbonates and petrochemical and carbon black production

# Volume 3: AFOLU -New elements

- Agriculture, Forestry and Other Land Use now integrated into one sector
- Managed land used as a proxy for identifying anthropogenic emissions by sources and removals by sinks (adopted in the GPG-LULUCF)
- Wild fires and prescribed burning are both estimated, from being optional to choose between the two
- Detailed methods for Harvested Wood Products (HWP) now provided
- Added - indirect  $\text{NO}_2$  from manure management,  $\text{CO}_2$  from urea fertilization;  $\text{N}_2\text{O}$  nitrogen mineralization associated with loss of soil organic matter resulting from change of land use or management of mineral soils
- Emissions from managed wetlands now included (2013 supplement volume)

# Volume 5: Waste – New elements

- Improved approach on methane from landfills: The previous Tier 1 method, based on the maximum potential release of methane in the year of placement, has been replaced by a simple first order decay model
- Carbon accumulation in landfills: provided as an output from the decay models (can be relevant for the estimation of HWP in AFOLU)
- Guidance on estimation of emissions from composting and biogas facilities has been included
- Added - Uncategorized waste disposal sites and biological treatment of solid waste



# Challenges in Preparation GHG Inventories: Terms of Reference for Consultants



- Who prepares the TORs?
  - In a number of cases it was one person, usually the NFC
  - In some cases consultants are asked to prepare their own TORs
- How thorough are the TOR
  - In many cases – they cover the basics, does not give impressions they were developed in accordance with guidelines requirements (IPCC or NC/BUR reporting guidelines)
  - In some cases they are a copy and paste of last TOR
  - In many cases they do not cover key elements; e.g, specific methodology, latest year of GHG inventory, tools to be used, etc
  - In most cases they do not take previous GHG Inventory reports into consideration

# Challenges: Institutional arrangement and capacity needs

- Real, adequate, with dedicated staff
  - In most cases institutional arrangement not rear and/or adequate
  - In most cases there are no dedicated staff for GHG inventory preparation
- Mobilization for report preparation
  - Ad-hoc mobilization is still practiced – no permanent arrangements
  - In most cases mobilization is mainly consultant procurement
  - In some cases mobilization does not include technical steering committees
  - Exclusion of relevant experts/relevant sectors
- Capacity and capacity building activities
  - In most cases capacity building not directly targeted to those involved in the report preparation process
  - In many cases capacity building events are undertaken after finalization of the reporting cycle – to utilize remaining funds
  - Few regional networks for capacity building and peer review

# Challenges: The report preparation process

## ■ Issues of Quality Control/Assurance

- No systematic QA/QC plan; ad hoc checks
- QA predominantly asking consultants to check the draft final report
- Most countries do not include public consultation and budget for this activity is not included

## ■ Archiving

- In some cases there are no electronic copies of previous GHG inventories
- Sometimes archiving is reduced to a folder with previous electronic copies
  - No systematic information management systems for processed and raw data
- Most countries are still not preparing a formal GHG inventory report

# Challenges: COP Decisions, Guidelines and Methodologies



- Despite significant effort and resources on capacity building provided by UNFCCC, CGE, IPCC-TSU, GSP, FAO and others on use of 2006 IPCC guidelines, a number of countries are still using or plan to use 1996 IPCC Guidelines
  - Use of 1996 IPCC could have implications in terms of technical support for such countries, including issues of REDD
  - It also means developing Parties are using outdated default emission factors which result in skewed profile of the global emission levels
  - SBI 42 Conclusion (**FCCC/SBI/2015/L.8. para 9**), requested UNFCCC, UNEP and UNDP to ensure developing countries are trained on 2006 IPCC Guidelines, even though there is no formal political decision for developing countries to use 2006 Guidelines.

# Challenges: COP Decisions, Guidelines and Methodologies - 2

- Parties are confused by COP Decisions and standing guidelines
  - COP Decision for Annex I countries to use 2006 Guidelines does not include Non-Annex I countries
  - COP Decision that requires Annex 1 countries to use FAR Global Warming Potentials, and Guidelines that require Non-Annex I countries to use SAR Global Warming Potential values
  - Parties are clinically following NC reporting Guidelines, whereas in some cases elements of the NC guidelines are superseded by the BUR guidelines. As such, there is a critical need to update the NC guidelines, or make it clear to the Parties that on similar issues, the BUR guidelines need to take precedent

# Note: GWP FCCC/CP/2002/7/Add.2 Pp20 – NC GLOBAL SUPPORT PROGRAMME

## Guidelines

- 20. Non-Annex I Parties wishing to report on aggregated GHG emissions and removals expressed in CO<sub>2</sub> equivalents should use the global warming potentials (GWP) provided by the IPCC in its Second Assessment Report (“1995 IPCC GWP Values”) based on the effects of GHGs over a 100-year time horizon.

# Challenges: GHG Inventory and NC and BUR Harmonization



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- Countries have still been unable to realize the need to harmonize their reporting between GHG inventories, NC and BUR. For example, while BUR has clear requirements on vintage of at most 4 years, a significant number of countries are not updating their GHG inventories to commensurate with this requirements, showing a disconnect between various reports prepared by the parties
  - Need to sensitize UN Environment and UNDP Enabling Activities programs on this requirement

# Challenges: Other Obstacles in Preparing National GHG Inventories

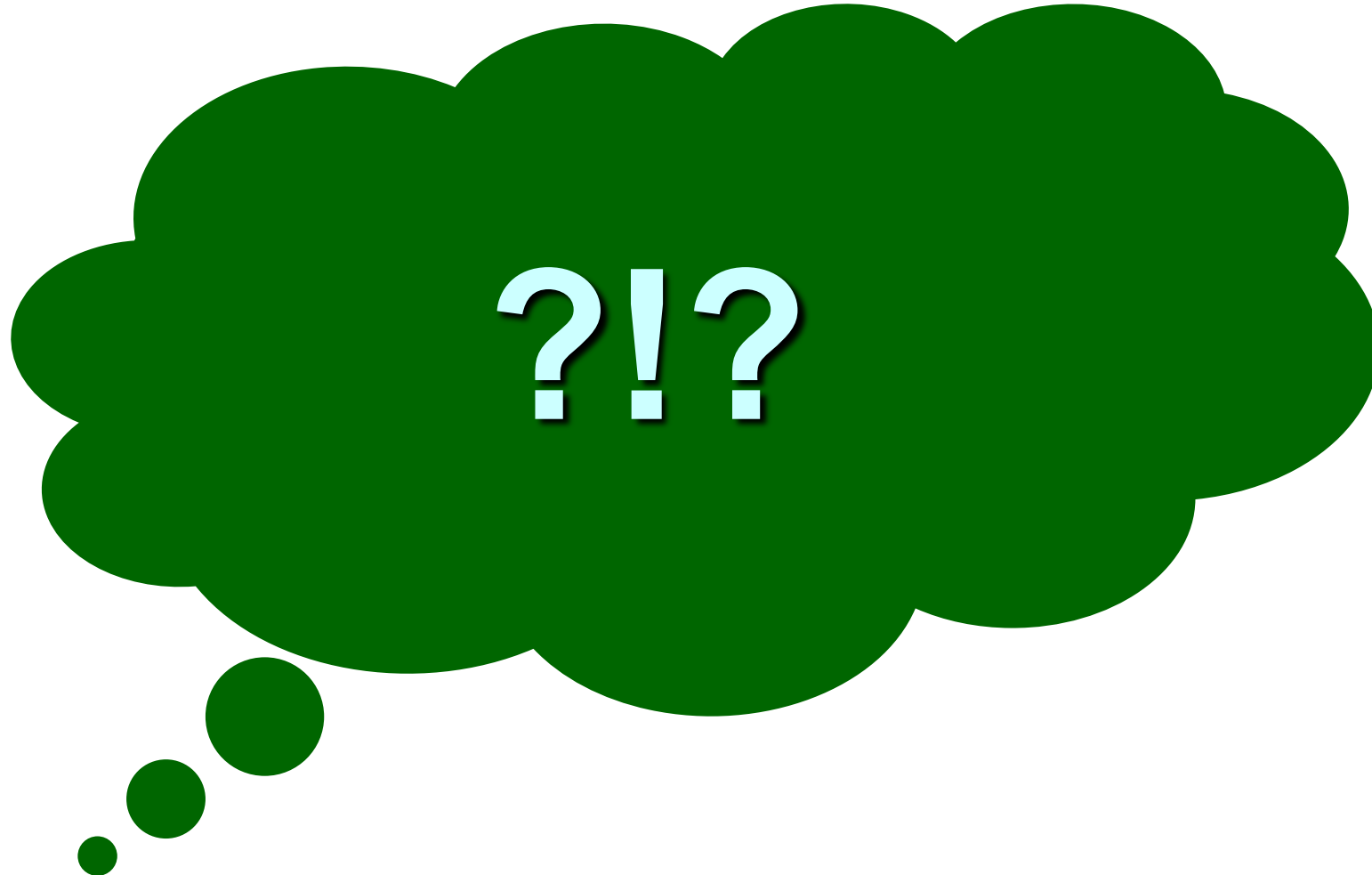
- Assumption that F-gas emissions in the country are not significant
- Not checking discrepancy between Reference and Sectoral Approach in Energy Sector – difference to within 2%
- Preference for use IPCC default rather than regional/national emission factors
- Lack of improvement plan and updating/recalculations of previous inventories
- Perception that 2006 IPCC Guidelines are difficult to use
- Inclusion of CO<sub>2</sub> emissions from biomass fuels in national emission totals
- Double counting between energy and IPPU



# Way Forward - Opportunities

- Learning from each other, both success stories and limitations
  - Need to improve exchange of information related to national inventories and mitigation/NDC goals amongst countries within a region
- Strengthening the existing linkages between national organizations involved in collection of activity data and those responsible for preparation of national inventories and communications/BURs
- Furthering of development of appropriate information management systems and for archiving and updating inventory/NC/BUR data, and submission of data to IPCC (EFDB)
- Appointments and designation of well-resourced technical coordinators/technical focal points or a secretariat with a clear set of mandates for the preparation of national GHG inventories and communications/BURs
- Formulation of at least basic national MRV institutional arrangement
  - High level political support needed to get inter-sectoral and inter-agency cooperation
- Creating the national MRV team that goes beyond preparation of GHG Inventory/NC/BUR reports
  - Discuss how to link the national reports with future development, and interact with government agencies and other interested parties, including industry, policy makers.

# Questions



# Thank You!

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